EDITOR: **S.G. Oliver** *Department of Biochemistry and Applied Molecular Biology, UMIST, PO Box 88, Manchester M60 1QD, UK*

US EDITOR: **R. Wickner** *National Institutes of Health, Building 8, Room 209, Bethesda, MD 20892, USA*

yeast

AIMS AND SCOPE

YEAST is a journal published for the international community of yeast researchers. It contains original research articles, major and minor reviews and short communications on all aspects of *Saccharomyces* and other yeast genera. By focusing on the most significant developments in this research area the journal will be invaluable reading for those wishing to keep up to date with this rapidly moving field.

EDITORIAL BOARD

J.A. Barnett *School of Biological Sciences, University of East Anglia, Norwich, UK*

T.G. Cooper *Department of Microbiology and Immunology, University of Tennessee, Center for the Health Sciences, Memphis, TN, USA*

I.W. Dawes *Department of Genetics, University of New South Wales, Kensington, NSW, Australia*

T. Fukasawa *Research Unit of Molecular Genetics, Keio University School of Medicine, Tokyo, Japan*

N. Gunge *Dept of Applied Microbial Technology, Kumamoto Institute of Technology, Japan*

W. Harder *Dept of Microbiology, University of Groningen, Haren, The Netherlands*

S.A. Henry *Mellon Institute, Carnegie Mellon University, Pittsburgh, PA, USA*

J.R. Johnston *Department of Bioscience and Biotechnology, University of Strathclyde, Glasgow, UK*

E.W. Jones *Carnegie Mellon University, Pittsburg, PA, USA*

A.J. Kingsman *Dept of Biochemistry, University of Oxford, UK*

A.J.S. Klar *National Cancer Institute, Section of Developmental Genetics, Frederick, MD, USA*

C.P. Kurtzman *Northern Regional Research Laboratory, Peoria, IL, USA*

V.L. Larionov *Institute of Cytology, Academy of Sciences of the USSR, 194064 Leningrad, USSR*

R.K. Mortimer *Dept of Biophysics, University of California, Berkeley, CA, USA*

P. Nagley *Dept of Biochemistry, Monash University, Clayton, Victoria 3168, Australia*

C.S. Newlon *Dept of Microbiology, UMDNJ—New Jersey Medical School, Newark, NJ, USA*

P. Niederberger *Nestlé Research Centre, Avenue Nestlé 55, CH-1800, Vevey, Switzerland*

P.S. Perlman *Department of Biochemistry, University of Texas, Dallas, TX, USA*

H.J. Phaff *Dept of Food Science and Technology, University of California, Davis, CA, USA*

P. Philippsen *University of Giessen, D63 Giessen L, Germany*

R. Planta *Biochemisch Laboratorium, Vrije Universiteit, De Boelelaan 1083, 1081 HV Amsterdam, The Netherlands*

J.R. Pringle *Division of Biological Sciences, University of Michigan, Ann Arbor, MI, USA*

A.H. Rose *School of Biological Sciences, University of Bath, Bath, UK*

W.A. Scheffers *Laboratorium voor Microbiologie, Technische Hogeschool, Delft, The Netherlands*

A. Sentenac *Service de Biochimie, Centre d'Etudes Nucléaires de Saclay, Gif-Sur-Yvette, France*

F. Sherman *Dept of Radiation, Biology and Biophysics, University of Rochester Medical Center, Rochester, NY, USA*

A. Toh-E *Department of Biology, Tokyo University, Hongo, Tokyo, 113, Japan*

M.F. Tuite *Biological Laboratory, University of Kent, Canterbury, UK*

N. Van Uden *Laboratory of Microbiology, Gulbenkian Institute of Science, Oeiras, Portugal*

P.V. Venkov *Bulgarian Academy of Sciences, Institute of Molecular Biology, 1113 Sofia, Bulgaria*

R.C. Von Borstel *University of Alberta, Edmonton, Alberta, Canada*

H. Weber *Zentralinstitut für Mikrobiologie und Experimentalle Therapie, Jena, Germany*

D.H. Williamson *National Institute for Medical Research, Mill Hill, London, UK*

D. Wolf *Institut fur Biochemie, Universitat Stuttgart, Germany*

M. Yamamoto *Institute of Medical Science, University of Tokyo, Tokyo 108, Japan*

M. Yanagida *Department of Biophysics, Faculty of Science, Kyoto University, Kyoto, Japan*

F.K. Zimmermann *Mykologi-Genetik, Technische Hochschule, Darmstadt, Germany*

WILEY

Publishers Since 1807

Chichester·New York·Brisbane·Toronto·Singapore

YESTE3 6 1–536 (1990)

ISSN 0749 503X

Copyright © 1990 John Wiley & Sons Ltd.

COPYING OF ARTICLES

The code and the copyright notice appearing at the bottom of the first page of an article in this journal indicates the copyright owner's consent that copies of the article may be made for personal or internal use, or for the personal or internal use of specific clients, on the condition that the copier pay for copying beyond that permitted by Sections 107 or 108 of the U.S. Copyright Law. The per-copy fee for each article appears after the dollar sign, and is to be paid through the Copyright Clearance Center Inc. This consent does not extend to other kinds of copying, such as copying for general distribution, for advertising or promotional purposes, for creating new collective works, or for resale. Such permission requests, or other inquiries, should be addressed to the publisher.

Typeset, printed and bound in Great Britain by Henry Ling Ltd, Dorchester

Contents

VOLUME 6, ISSUE Nos. 1–6

Yeast

ISSUE No. 1 JANUARY – FEBRUARY 1990

The Plasmid-encoded Killer System of *Kluyveromyces lactis*: a Review
M. J. R. Stark, A. Boyd, A. J. Mileham and M. A. Romanos 1

Detection of Specific RNA Sequences in Yeast by *in situ* Colony Hybridization
I. Ivanov, R. Mironova, D. Philipova and P. Venkov 31

Occurrence of Peroxisomal Membrane Proteins in Methylotrophic Yeast Grown Under Different Conditions
G. J. Sulter, L. Looyenga, M. Veenhuis and W. Harder 35

Immunocytochemical Demonstration of the Peroxisomal ATPase of Yeasts
A. C. Douma, M. Veenhuis, H. R. Waterham and W. Harder 45

Intracellular and Extracellular Levels of Cyclic AMP During the Cell Cycle of *Saccharomyces Cerevisiae*
M. E. Smith, J. R. Dickinson and A. E. Wheals 53

Comparative Study on Cytochrome P-450 of Yeasts using Specific Antibodies to Cytochromes P-450$_{alk}$ and P-450$_{14DM}$
E. Kaergel, Y. Aoyama, W.-H. Schunck, H.-G. Mueller and Y. Yoshida 61

Isolation and Sequence Analysis of a *K. lactis* Chromosomal DNA Element able to Autonomously Replicate in *S. cerevisiae* and *K. lactis*
L. Fabiani, M. Aragona and L. Frontali 69

Yeast Flocculation: Cationic Inhibition
M. Stratford and H. M. Brundish 77

ISSUE No. 2 MARCH – APRIL 1990

Peroxisome-Deficient Mutants of *Hansenula polymorpha*
J. M. Cregg, I. J. van Klei, G. J. Sulter, M. Veenhuis and W. Harder 87

Liposome-mediated Introduction of Proteins into Protoplasts of the Yeast *Hansenula polymorpha* as a Possible Tool to Study Peroxisome Biogenesis
A. C. Douma, M. Veenhuis, A. J. M. Driessen and W. Harder 99

Metabolic Regulation in the Yeast *Hansenula polymorpha*. Growth of Dihydroxyacetone Kinase/Glycerol Kinase-Negative Mutants on Mixtures of Methanol and Xylose in Continuous Cultures
W. de Koning, R. A. Weusthuis, W. Harder and L. Dijkhuizen 107

Classical Transketolase Functions as the Formaldehyde-assimilating Enzyme During Growth of a Dihydroxyacetone Synthase-negative Mutant of the Methylotrophic Yeast *Hansenula polymorpha* on Mixtures of Xylose and Methanol in Continuous Cultures
W. de Koning, K. Bonting, W. Harder and L. Dijkhuizen 117

A Novel Aspartyl Protease Allowing *KEX2*-Independent MFα Propheromone Processing in Yeast
M. Egel-Mitani, H. P. Flygenring and M. T. Hansen 127

Optical Fibers as Tetrad Dissection Needles
D. J. Eichinger and J. D. Boeke 139

Cloning and Sequencing of the Ornithine Carbamoyltransferase Gene From *Pachysolen tannophilus*
M. Skrzypek, P. Borsuk and R. Maleszka 141

Substrate-Accelerated Death of *Saccharomyces cerevisiae* CBS 8066 under Maltose Stress
E. Postma, C. Verduyn, A. Kuiper, W. A. Scheffers and J. P. van Dijken 149

A K_2 Neutral *Saccharomyces cerevisiae* Strain Contains a Variant K_2M Genome
B. D. Wingfield, V. J. Southgate, I. S. Pretorius and H. J. J. van Vuuren 159

Book Review 171

Yeast Sequencing Reports
Sequencing of the Yeast Gene *RVS 161* Located on Chromosome III
M. Urdaci, L. Dulau, M. Aigle and M. Crouzet 173

Calendar 177

ISSUE No. 3 MAY – JUNE 1990

Creation of ARS Activity in Yeast Through Iteration of Non-Functional Sequences
S. G. Zweifel and W. L. Fangman 179

Osmoregulatory Active Sodium-Glycerol Co-transport in the Halotolerant Yeast *Debaryomyces hansenii*
C. Lucas, M. da Costa and N. van Uden 187

The Alcohol Dehydrogenase System in the Yeast, *Kluyveromyces lactis*
M. Saliola, J. R. Shuster and C. Falcone 193

Cell Fusion of *Saccharomyces cerevisiae* Fragile Mutants
D. H. Philipova and P. V. Venkov 205

DNA Relatedness Among Species of the Genus Zygosaccharomyces
C. P. Kurtzman 213

Bacterial Plasmid pBR322 Sequences Serve as Upstream Activating Sequences in *Saccharomyces cerevisiae*
R. S. Sidhu and A. P. Bollon 221

The Start Gene *CDC28* and the Genetic Stability of Yeast
A. B. Devin, T. Yu. Prosvirova, V. T. Peshekhonov, O. V. Chepurnaya, M. E. Smirnova, N. A. Koltovaya, E. N. Troitskaya and I. P. Arman 231

Cloning and Sequencing of the Malate Synthase Gene from *Hansenula polymorpha*
P. G. Bruinenberg, M. Blaauw, B. Kazemier and G. Ab 245

Oscillatory CO_2 Evolution in Glycolysing Yeast Extracts
J. Das, H. Timm, H.-G. Busse and H. Degn 255

GABA Transport in *Saccharomyces cerevisiae*
J. McKelvey, R. Rai and T. G. Cooper 263

ISSUE No. 4 JULY – AUGUST 1990

Regulatory DNA-Binding Proteins in Yeast: An Overview
J.-M. Verdier 271

***Dekkera, Brettanomyces* and *Eeniella*: Electrophoretic Comparison of Enzymes and DNA–DNA Homology**
M. Th. Smith, M. Yamazaki and G. A. Poot 299

Increase of the Anion and Proton Permeability of *Saccharomyces carlsbergensis* Plasmalemma by n-Alcohols as a Possible Cause of its De-energization
V. V. Petrov and L. A. Okorokov 311

Purification of δ-Aminolevulinate Dehydratase from Genetically Engineered Yeast
L. M. Borralho, C. H. D. Ortiz, A. D. Panek and J. R. Mattoon 319

The Hydrophilic and Acidic N-Terminus of the Integral Membrane Enzyme Phosphatidylserine Synthase is Required for Efficient Membrane Insertion
C. Sperka-Gottlieb, E.-V. Fasch, K. Kuchler, A. M. Bailis, S. A. Henry, F. Paltauf and S. D. Kohlwein 331

An Essential Gene in *Saccharomyces cerevisiae* Shares an Upstream Regulatory Element with *PRP4*
S. Petersen-Bjørn, T. R. Harrington and J. D. Friesen 345

Yeast Sequencing Reports
Analysis of the *THR4* Region on Chromosome III of the Yeast *Saccharomyces cerevisiae*
G. Mannhaupt, G. van der Linden, I. Vetter, K. Maurer, U. Pilz, R. Planta and H. Feldmann 353

ISSUE No. 5 SEPTEMBER – OCTOBER 1990

Yeast *Saccharomyces cerevisiae* Selectable Markers in pUC18 Polylinkers
J. S. Jones and L. Prakash 363

The Chromosomal Constitution of Wine Strains of *Saccharomyces cerevisiae*
A. T. Bakalinsky and R. Snow 367

Chromosome III of *Saccharomyces cerevisiae*: An Ordered Clone Bank, a Detailed Restriction Map and Analysis of Transcripts Suggest the Presence of 160 Genes
A. Yoshikawa and K. Isono 383

Nucleotide Sequence of the Cytochrome Oxidase Subunit 2 and *val*-tRNA Genes and Surrounding Sequences from *Kluyveromyces lactis* K8 Mitochondrial DNA
C. M. Hardy and G. D. Clark-Walker 403

Mapping of the Trifunctional Fatty Acid Synthetase Gene *FAS2* on Chromosome XVI of *Saccharomyces cerevisiae*
U. Siebenlist, J. Nix, M. Schweizer, D. Jäger and E. Schweizer 411

Mating Type Locus-Dependent Stability of the *Kluyveromyces* Linear pGKL Plasmids in *Saccharomyces cerevisiae*
N. Gunge, K. Murakami, T. Takesako and H. Moriyama 417

Characterization of the Cytochrome c Gene from the Starch-Fermenting Yeast *Schwanniomyces occidentalis* and its Expression in Baker's Yeast
B. Y. Amegadzie, R. S. Zitomer and C. P. Hollenberg 429

The Omnipotent Suppressor *SUP45* Affects Nucleic Acid Metabolism and Mitochondrial Structure
M. J. Pocklington, L. Johnston, J. R. Jenkins and E. Orr 441

The Yeast Regulatory Gene *PHO4* Encodes a Helix-Loop-Helix Motif
G. Berben, M. Legrain, V. Gilliquet and F. Hilger 451

ISSUE No. 6 NOVEMBER – DECEMBER 1990

Ornithine Decarboxylase in *Saccharomyces cerevisiae*: Chromosomal Assignment and Genetic Mapping of the *SPE1* Gene
Q.-W. Xie, C. White Tabor and H. Tabor 455

Divergence and Conservation of *SUP2(SUP35)* Gene of Yeast *Pichia pinus* and *Saccharomyces cerevisiae*
V. V. Kushnirov, M. D. Ter-Avanesyan, S. A. Didichenko, V. N. Smirnov, Y. O. Chernoff, I. L. Derkach, O. N. Novikova, S. G. Inge-Vechtomov, M. A. Neistat and I. I. Tolstorukov 461

Effect of Leader Primary Structure on the Translational Efficiency of Phosphoglycerate Kinase mRNA in Yeast
J. J. van den Heuvel, R. J. Planta and H. A. Raué 473

An Assay of Relative Cell Wall Porosity in *Saccharomyces cerevisiae*, *Kluyveromyces lactis* and *Schizosaccharomyces pombe*
J. G. de Nobel, F. M. Klis, T. Munnik, J. Priem and H. van den Ende 483

The Glucanase-Soluble Mannoproteins Limit Cell Wall Porosity in *Saccharomyces cerevisiae*
J. G. de Nobel, F. M. Klis, J. Priem, T. Munnik and H. van den Ende 491

Assembly of Amine Oxidase and D-Amino Acid Oxidase in the Cytosol of Peroxisome-Deficient Mutants of the Yeast *Hansenula polymorpha* During Growth of Cells on Glucose in the Presence of Primary Amines or D-Alanine as the Sole Nitrogen Source
G. J. Sulter, I. J. van der Klei, W. Harder and M. Veenhuis 501

Excessive Membrane Development Following Exposure of the Methylotrophic Yeast *Hansenula polymorpha* to Oleic Acid-Containing Media
M. Veenhuis, A. M. Kram, W. H. Kunau and W. Harder 511

Yeast Sequencing Reports
The Complete Sequence of the 8.2 kb Segment Left of *MAT* on Chromosome III Reveals Five ORFs, Including a Gene for a Yeast Ribokinase
A. Thierry, C. Fairhead and B. Dujon 521

Obituary 535

Volume Contents, Volume 6 iii

Author Index, Volume 6 vii

Keyword Index, Volume 6 ix